

***Pseudodelphis eleginopsis* n. sp. (Nematoda: Guyanemidae), a new tissue-dwelling parasite of the Patagonian blennie *Eleginops maclovinus* (Cuvier) (Perciformes: Eleginopsidae) in Argentina, with notes on related forms**

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Abstract Based on light and scanning electron microscopical studies, a new nematode parasite, *Pseudodelphis eleginopsis* n. sp. (Dracunculoidea: Guyanemidae), is described from tissues behind the gills of the Patagonian blennie *Eleginops maclovinus* (Cuvier) (Perciformes: Eleginopsidae) off the Atlantic coast (San Matías and San José Gulfs) of Patagonia, Argentina. The new species is mainly characterised by the length of the body (males 10–13 mm, larvigerous females 31–59 mm), the number (14) and arrangement of cephalic papillae, the absence of a buccal capsule, the muscular to glandular oesophagus length ratio (1:3–4) of larvigerous females, the length of the

spicules (48–63 µm) and the number (7 pairs) and arrangement of the caudal papillae in the male. *Pseudodelphis eleginopsis* n. sp. is the first species of this genus described from a marine fish in the Atlantic Ocean and the first known dracunculoid parasitising the fish host belonging to the family Eleginopsidae. As revealed by the examination of very young females of the new species, the female genital tract of *Pseudodelphis* spp. is monodelphic. The genus *Syngnathinema* Moravec, Spangenberg & Frasca, 2001 is considered a junior synonym of *Pseudodelphis* Adamson & Roth, 1990 and, consequently, *S. californiense* and *S. chitwoodi* are transferred to *Pseudodelphis* as *P. californiensis* (Moravec, Spangenberg & Frasca, 2001) n. comb. and *P. chitwoodi* (Moravec & Kuchta, 2013) n. comb., respectively. Two dracunculoid species, *Pseudodelphis limnicola* Brugni & Viozzi, 2006 and the previously established *Philonema percichthydis* Moravec, Urawa & Coria, 1997, both described from the same freshwater host species, *Percichthys trucha* (Valenciennes), in the same region (Patagonia), are considered to

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be identical; therefore, the valid name of this species is *Pseudodelphis percichthydis* n. comb. and *P. limnicola* becomes its junior synonym. A key to the species of *Pseudodelphis* is provided.

Introduction

Dracunculoid nematodes (Dracunculoidea Stiles, 1907), characterised by certain morphological features and some biological peculiarities, represent a large and diverse group of tissue-dwelling parasites with worldwide distribution. Hosts of its numerous species belong to all main classes of vertebrates including man, being widely distributed particularly among freshwater, brackish-water and marine fishes (Moravec, 2006). Most species of dracunculoids parasitising fishes belong to the family Philometridae Baylis & Daubney, 1926. The present knowledge of dracunculoids as a whole is by far insufficient and a taxonomic revision of this nematode group, based on detailed morphological, life history and molecular studies of individual species is urgently needed.

To date, the fauna of dracunculoids parasitising fishes in Argentinian waters is little known. Moravec et al. (1997), based on two available female specimens, described *Philonema percichthydis* Moravec, Urawa & Coria, 1997 from the abdominal cavity of the freshwater fish *Percichthys trucha* (Valenciennes) (Percichthyidae) in Lake Aluminé, Patagonia. Subsequently, Incorvaia (1999) established *Ichthyofilaria argentinensis* Incorvaia, 1999 from the swimbladder of the marine fish *Merluccius hubbsi* Marini (Melucciidae), the females of which were later redescribed by Timi et al. (2001). Brugni & Viozzi (2006) described *Pseudodelphis limnicola* Brugni & Viozzi, 2006 (Guyanemidae) from the circulatory system and abdominal cavity of *P. trucha* in several lakes in Patagonia. In the following year, Braicovich et al. (2007) established *Moravecia argentinensis* Braicovich, Moravec & Timi, 2007 (Guyanemidae) from the blood vessels and body cavity of the marine fish *Percophis brasiliensis* Quoy & Gaimard (Percophidae) and, subsequently, Cantatore et al. (2010) described, for the first time, the male of *I. argentinensis*. The last dracunculoid species described from Argentinian fishes is *Philometroides tahieli* Montes, Plaul & Martorelli, 2016 (Philometridae) from the operculum of the marine fish *Micropogonias furnieri* (Desmarest) (Sciaenidae) (see Montes et al., 2016).

During recent studies on parasites of some marine perciform fishes off the Atlantic coast of Patagonia, Argentina, adult dracunculoid nematodes referable to *Pseudodelphis* Adamson & Roth, 1990 (Guyanemidae) were recovered from tissues behind the gills of the Patagonian blennie *Eleginops maclovinus* (Cuvier) (Perciformes, Eleginopsidae). Closer examination revealed that they represent a new species. Results of this study are presented herein.

Materials and methods

A total of 49 Patagonian blennies (total body length 16.5–50.1 cm) were collected between March and December 2017 from two zones along the Patagonian coast of Argentina: San Antonio Bay, San Matías Gulf (40°42′–40°45′S, 63°05′–65°10′W; n = 32), and Villarino Beach, San José Gulf (42°24′56″S, 64°17′18″W; n = 17). Fish were collected by angling or using the beach seine; these were kept fresh in ice or frozen in plastic bags at –20°C. The nematodes obtained were washed in physiological saline and then they were fixed either in hot 4% formalin or in 70% ethanol. For light microscopical examination, the nematodes were cleared using glycerine. Drawings were made with the aid of a Zeiss drawing attachment. Formalin-fixed specimens used for scanning electron microscopy (SEM) were postfixed in 1% osmium tetroxide (in phosphate buffer), dehydrated through a graded acetone series, critical-point-dried and sputter-coated with gold; they were examined using a JEOL JSM-7401F scanning electron microscope at an accelerating voltage of 4 kV (GB low mode). Paratypes of *P. percichthydis* and *P. limnicola* deposited in the Helminthological Collection of the Institute of Parasitology, Biology Centre of the Czech Academy of Sciences (Cat. Nos. N-690 and N-833, respectively) were re-examined. All measurements are in micrometres unless otherwise indicated. The fish nomenclature adopted follows FishBase (Froese & Pauly, 2018).

Family Guyanemidae Petter, 1974

Pseudodelphis Adamson & Roth, 1990

Syn. *Syngnathinema* Moravec, Spangenberg & Frasca, 2001 (new synonymy)

***Pseudodelphis eleginopsis* n. sp.**

Type-host: Patagonian blennie *Eleginops maclovinus* (Cuvier) (Perciformes, Eleginopsidae).

Type-locality: Caleta Falsa (40°47'17"S, 64°49'11"W), San Antonio Bay, San Matías Gulf (an inlet of the Atlantic Ocean, 40°42'–40°45'S, 63°05'–65°10'W), Patagonia, Argentina (collected on 5.xii.2017).

Other localities: Other locations in San Antonio Bay, San Matías Gulf (40°42'–40°45'S, 63°05'–65°10'W) (collected between March and December 2017) and Villarino Beach, San José Gulf (an inlet of the Atlantic Ocean, 42°24'56"S, 64°17'18"W) (collected between April and August 2017), both Patagonia, Argentina.

Type-material: Helminthological Collection, Institute of Parasitology, Biology Centre of the Czech Academy of Sciences, České Budějovice, Czech Republic (holotype, allotype and paratypes, Cat. No. N-1155); Helminthological Collection of the Museo de La Plata, La Plata, Argentina (paratypes, Cat. No. MLP-He 7460).

Site in host: Tissues behind gills (in nodules located in membrane surrounding cleithrum (at posterior edge of gill chamber) and mesentery).

Prevalence and intensity: Overall prevalence 49% (24 fish infected/49 fish examined): San Antonio Bay 56% (18/32), Villarino Beach 35% (6/17); exact intensity mostly not determined, because small juvenile forms and males were not collected. Both males and females were recovered only in the sample of 9 *E. maclovinus* from the type-locality (Caleta Falsa, San Antonio Bay, San Matías Gulf) (collected on 5.xii.2017), of which 6 were infected, with an intensity of 3–22 (mean 7) nematodes per fish.

ZooBank registration: To comply with the regulations set out in article 8.5 of the amended 2012 version of the International Code of Zoological Nomenclature (ICZN, 2012), details of the new species have been submitted to ZooBank. The Life Identifier (LSID) for *Pseudodelphis eleginopsis* n. sp. is urn:lsid:zoobank.org:act:B445CAAB-A67D-4F59-A88A-19957B983D1D.

Etymology: The specific name of this nematode relates to the genitive form of the generic name of the host.

Description (Figs. 1–4)

General. Body long, slender, with slightly transversely striated cuticle (Figs. 3D, 4C–F); anterior part of body distinctly broader than posterior part. Cephalic end rounded. Oral aperture small, roughly triangular,

dorsoventrally elongate, surrounded by cephalic papillae arranged in 2 circles: 6 papillae (4 submedian and 2 lateral) of inner circle similar, 8 papillae of outer circle arranged in 4 submedian pairs of which more median papilla in each pair smaller; pair of small lateral amphids present, located somewhat posterior to lateral papillae of inner circle (Figs. 1E, 3A, B). Mouth with 3 oesophageal lobes at bottom (Figs. 1E, 3B, C). Buccal capsule absent. Oesophagus divided into short anterior portion with small anterior bulbous inflation and posterior wider and longer glandular portion (Fig. 1A–D, F, G). Nerve-ring prominent, encircling muscular oesophagus. Deirids small, rod-like, situated slightly posterior to level of nerve-ring (Figs. 1A, B, 4E, F). Excretory pore inconspicuous; excretory cell just anterior to glandular oesophagus (Fig. 1A, C, D).

Male [Based on 5 specimens; measurements of the holotype in parentheses.] Length of body 10.02–13.16 (12.65) mm; maximum width 87–129 (105); width of cephalic end 51–69 (69); maximum width/length of body 1:78–120 (1:107). Length of entire oesophagus 2.58–3.42 (3.42) mm, representing 22–27% (27%) of body length. Muscular oesophagus including anterior bulbous inflation 394–503 (476) long and 21–27 (27) wide, anterior inflation 30–33 × 33–39 (30 × 36); glandular oesophagus 2.19–2.95 (2.95) mm long, 57–93 (81) in maximum width; length ratio of both parts 1:5–6 (1:6). Nerve-ring, deirids and excretory pore 223–270 (270), 222–270 (270) and 279–345 (309), respectively, from anterior extremity. Spicules well sclerotised, equal, measuring 48–63 (57) mm in length; anterior end of spicules blunt, posterior end pointed (Fig. 2A). Caudal papillae: 3 pairs of preanal, 1 pair of adanal and 4 pairs of postanal subventral papillae present (Figs. 2A–C, 3D, F, G, 4A–D); papillae of adanal pair located somewhat more laterally than those of last pair of preanals; first 3 pairs of postanals usually closer to each other, being either symmetrical (Figs. 2B, 3F, 4B) or distinctly asymmetrical (papillae on left side shifted more posteriorly) (Figs. 2C, 3G, 4A). Pair of small lateral phasmids situated just posterior to level of second pair of postanal papillae (Figs. 2A–C, 4A, C). Pericloacal region somewhat elevated; distinct median protuberance present on anterior cloacal lip (Figs. 3D, F, G, 4B, C). Caudal alae absent. Tail elongate, 144–222 (162) long, with rounded tip (Figs. 2A–C, 3F, G, 4A, B).

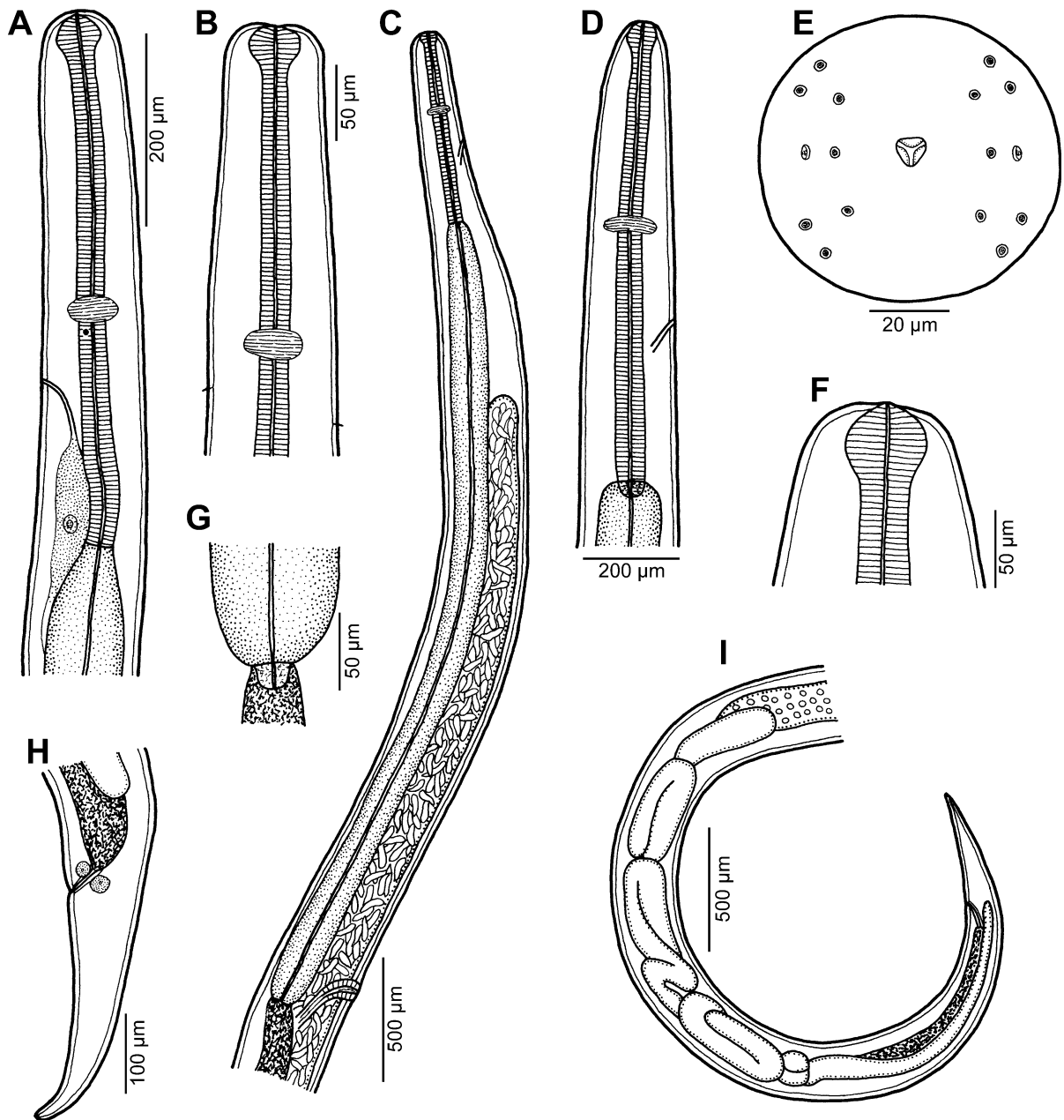


Fig. 1 *Pseudodelphis eginopsis* n. sp. A, B, Anterior extremity of male, lateral and dorsoventral views, respectively; C, Anterior part of body of larvigerous female, lateral view; D, Anterior extremity of larvigerous female, lateral view; E, F, Cephalic region of female, apical and lateral views, respectively; G, Oesophago-intestinal junction; H, Female tail, lateral view; I, Posterior end of larvigerous female, lateral view

Larvigerous female [Based on 10 specimens; measurements of allotype in parentheses.] Length of body 30.63–59.09 (59.09) mm, maximum width 381–612 (462); width of cephalic end 95–122 (109); maximum width/length of body 1:83–128 (1:128). Length of

entire oesophagus 3.18–4.53 (4.53) mm, representing 8–10% (8%) of body length. Muscular oesophagus including anterior bulbous inflation 598–1,047 (898) long and 57–109 (82) wide, anterior inflation 36–60 × 45–72 (39 × 54); glandular oesophagus 2.58–4.03

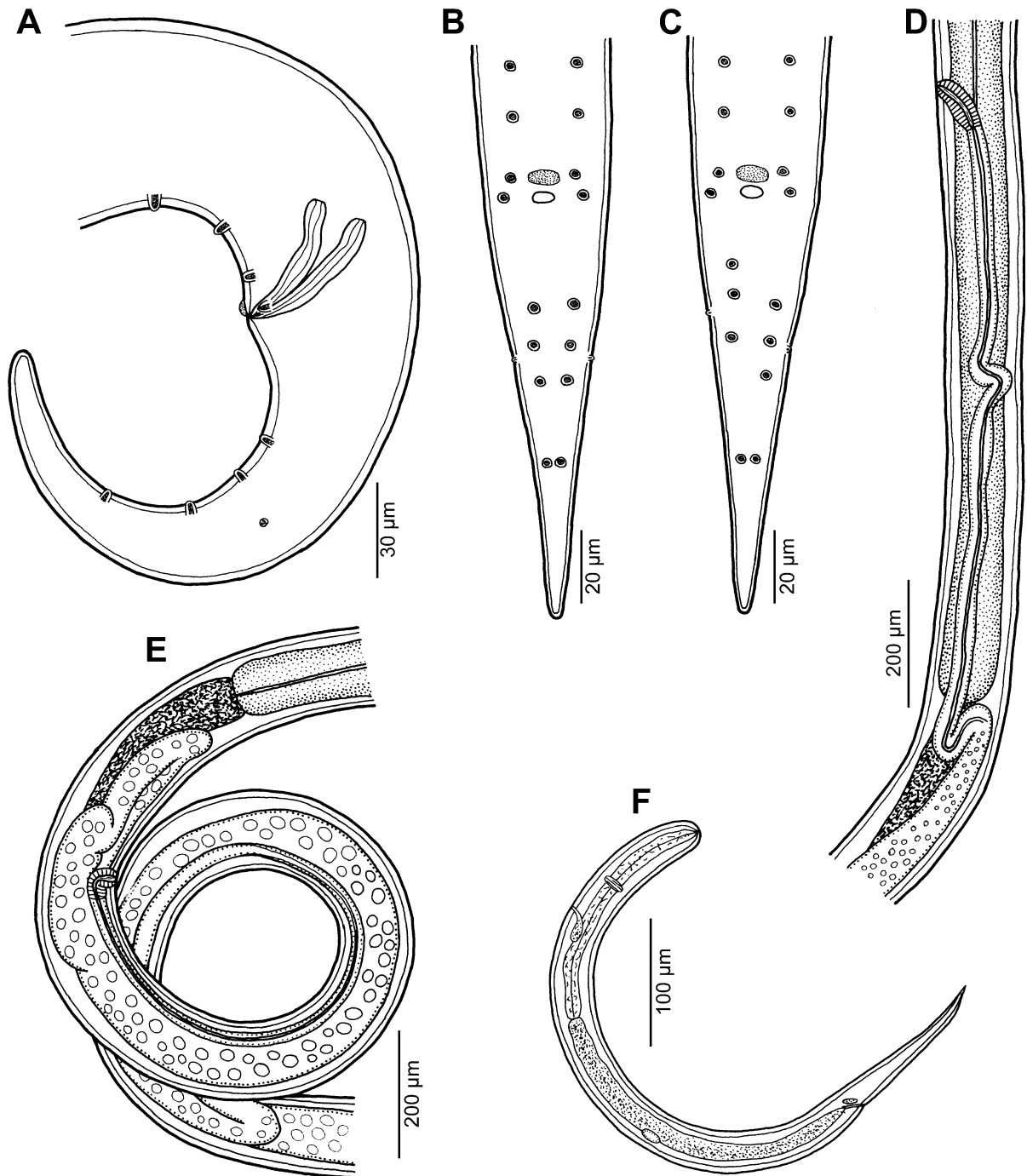


Fig. 2 *Pseudodelphis eginopsis* n. sp. A, Posterior extremity of male, lateral view; B, C, Posterior extremity of male, ventral views (two different specimens; reconstructed from SEM micrographs); D, Distal part of the genital tract of a juvenile female with immature eggs in uterus, lateral view; E, Distal part of the genital tract of an ovigerous female, lateral view; F, Larva from uterus, lateral view

(3.63) mm long, 177–272 (190) in maximum width; length ratio of both parts 1:3–4 (1:4). Nerve-ring, deirids and excretory pore 313–544 (544), 517–625

(557) and 571–857 (857), respectively, from anterior extremity. Vulva non-elevated or slightly elevated, located somewhat anterior or posterior to posterior end

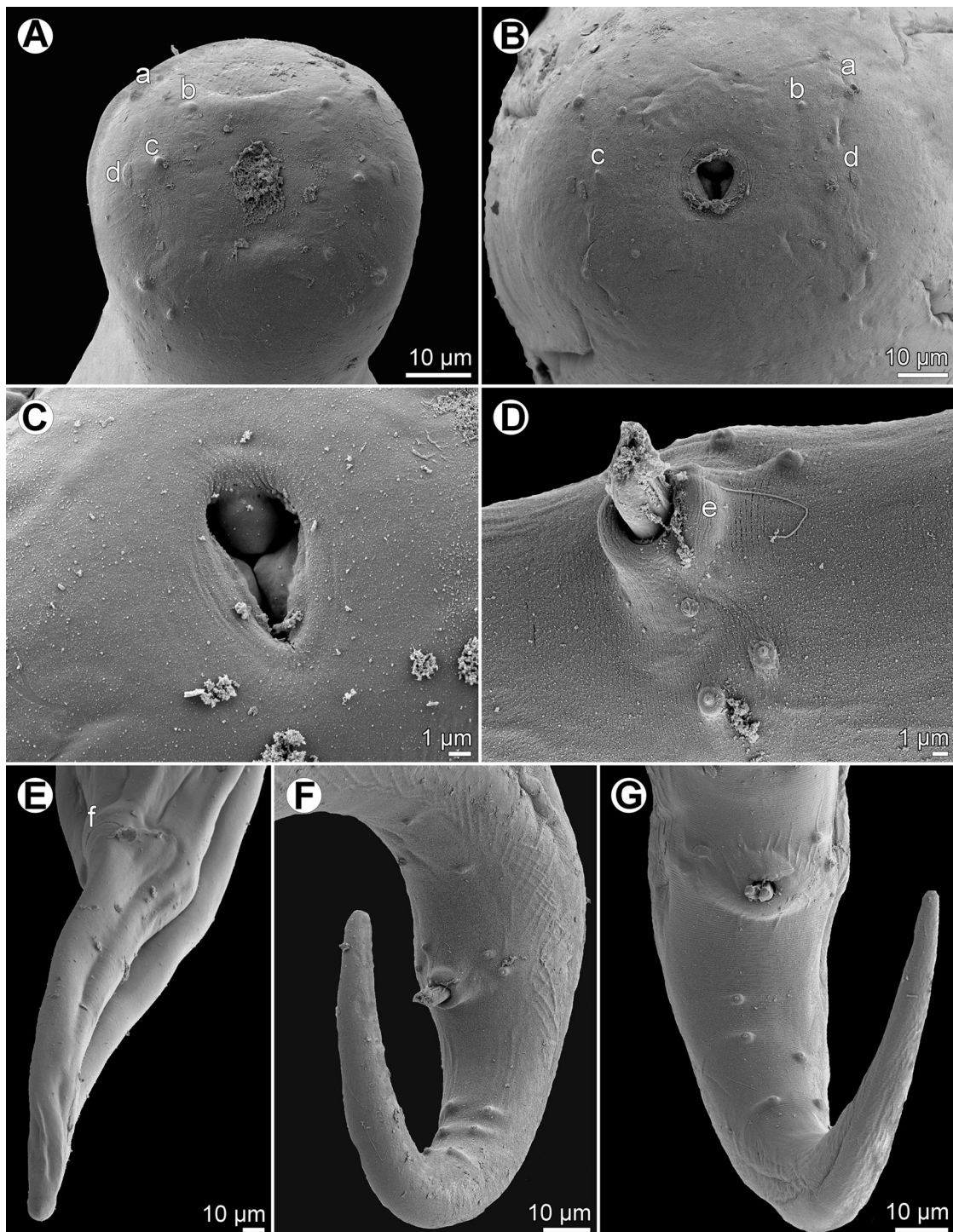


Fig. 3 *Pseudodelphis eginopsis* n. sp., scanning electron micrographs. A, B, Cephalic region of male and female, respectively, apical views; C, Oral aperture of male, apical view; D, Region of cloaca, ventrolateral view; E, Female tail, subventral view; F, G, Male tail of two specimens with different arrangement of postanal papillae, ventral views. *Abbreviations*: a, submedian pair of cephalic papillae of outer circle; b, submedian cephalic papilla of inner circle; c, lateral cephalic papilla of inner circle; d, amphid; e, precloacal protuberance; f, anus

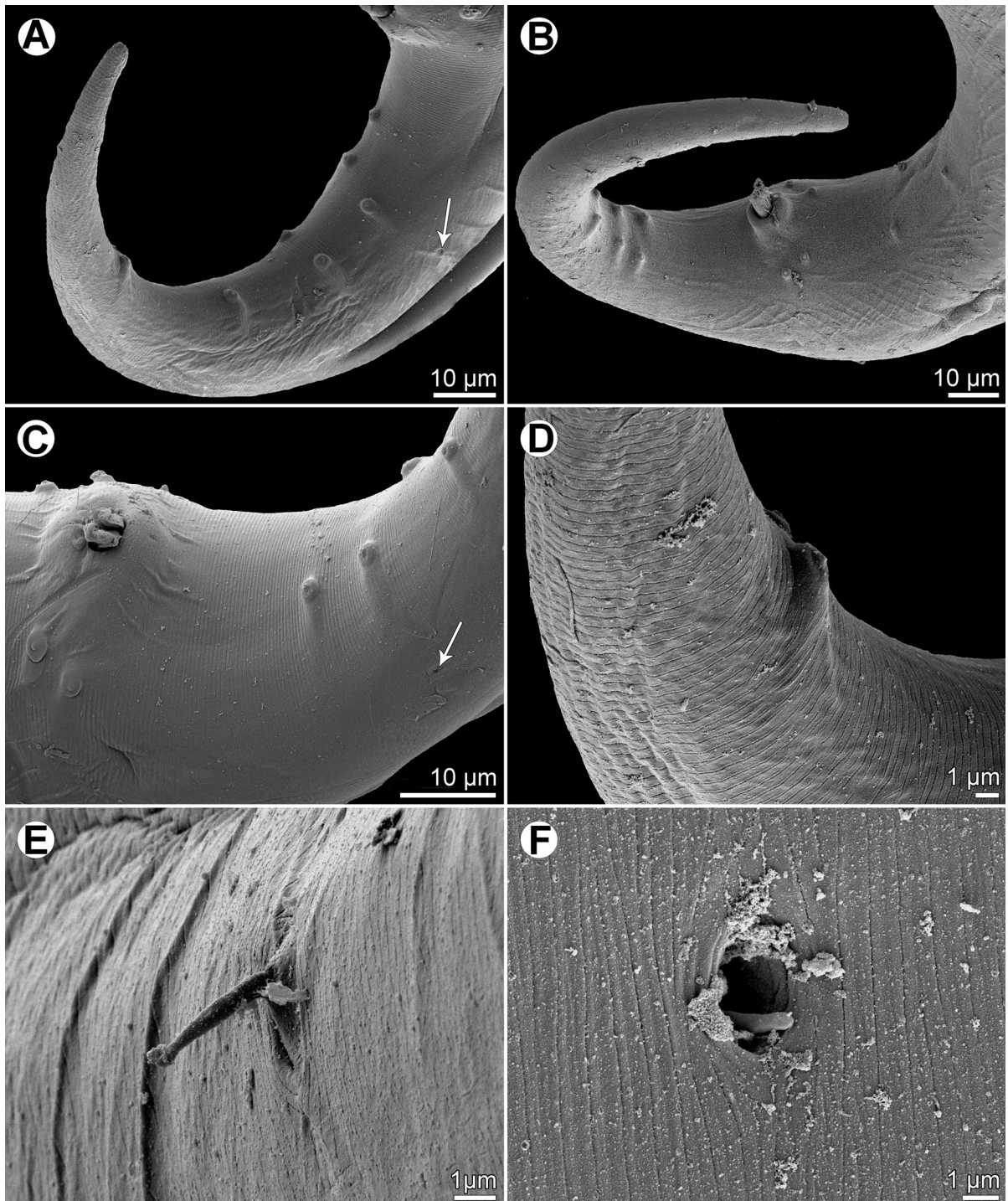


Fig. 4 *Pseudodelphis eginopsis* n. sp., scanning electron micrographs. A, Male tail of specimen with asymmetrically arranged papillae, ventrolateral view (arrow indicates phasmid); B, Male tail of specimen with symmetrically arranged papillae, ventrolateral view; C, Region posterior to cloaca, ventrolateral view (arrow indicates phasmid); D, Last pair of postanal papillae, sublateral view; E, Deirid of male; F, Deirid of female

of oesophagus, at 2.43–6.12 (4.26) mm from anterior extremity, at 7–11% (7%) of body length (Fig. 1C). Vagina muscular, mostly directed posteriorly (exceptionally anteriorly) from vulva. Reproductive system monodelphic. Single ovary tubular, rather long, forming coils at region of posterior end of intestine (Fig. 1I). Oviduct short; uterus running anteriorly up to about level of anterior end of glandular oesophagus, then it returns back to certain distance posterior to vulva; distal part of uterus again oriented anteriorly and gradually turning into muscular, posteriorly directed vagina (Fig. 1C). In the direction from its posterior to anterior end, uterus containing gradually eggs, developing embryos and fully developed larvae. Larvae from uterus with rounded cephalic end and pointed tail; their body length 630–753, maximum width 36 (Fig. 2F). Female tail conical, 299–394 (340) long, with pointed to somewhat rounded tip (Figs. 1H, 3E).

Ovigerous female [Based on 3 specimens.] Length of body 16.69–22.44 mm, maximum width 150; width of cephalic end 69; maximum width/length of body 1:111–149. Length of entire oesophagus 3.24 mm, representing 14–19% of body length. Muscular oesophagus including anterior bulbous inflation 612–625 long and 36–42 wide, anterior inflation 30–33 × 36–45; glandular oesophagus 2.61–2.63 mm long, 105–117 in maximum width; length ratio of both parts 1:4. Nerve-ring and deirids 255–299 and 300–318, respectively, from anterior extremity. Vulva non-elevated, located somewhat anterior or posterior to posterior end of oesophagus, at 2.19–3.54 mm from anterior extremity, at 13–16% of body length (Fig. 2D, E). Vagina directed posteriorly from vulva. Single ovary tubular, rather long, forming coils at region of posterior end of intestine. Uterus running anteriorly to about level of posterior end of glandular oesophagus, containing numerous eggs (Fig. 2D, E). Tail conical, 243–246 long.

Discussion

According to the key to families of the Dracunculoidea provided by Moravec (2006), the present nematodes from *E. maclovinus* belong to the nominotypical subfamily Guyaneminae Petter, 1974 of the family Guyanemidae. Their general morphology, in

particular the absence of male caudal alae and the monodelphic reproductive tract with the vulva located near the posterior end of the oesophagus, and the fact that they are parasites of teleosts shows that they are representatives of the genus *Pseudodelphis*.

Based on the insufficiently described type-species of *Pseudodelphis*, *P. oligocotti* Adamson & Roth, 1990, Adamson & Roth (1990) characterised this genus in that the female genital tract is didelphic, with the anterior uterus ending blindly without associated oviduct and ovary. However, the present study of little-developed females of *P. elegendopsis* n. sp. shows clearly that their genital tract is monodelphic (Fig. 2D); the uterus of more developed specimens forms an anterior coil, extending sometimes up to the anterior end of the glandular oesophagus. In forming such a conspicuous anterior coil (earlier considered to be a blind anterior uterus), the uterus of *Pseudodelphis* resembles that described, e.g. in the related dracunculoids *Lucionema balatonense* Moravec, Molnár & Székely, 1998 (Lucionematidae), a parasite of the swimbladder wall of the freshwater percid *Sander lucioperca* (Linnaeus) in Europe (Moravec et al., 1998) or *Moravecia argentinensis* Braicovich, Moravec & Timi, 2007 (Guyanemidae) parasitising blood vessels and the body cavity of the marine perciform fish (Brazilian flathead) *Percophis brasiliensis* (see Braicovich et al., 2007).

Pseudodelphis oligocotti was described by Adamson & Roth (1990) from the mesentery surrounding the intestine of the marine fish *Oligocottus maculosus* Girard (Cottidae) off the Pacific coast of Canada, but the description was incomplete (no larvigerous females were present in their material) and somewhat misleading in that the authors considered the anterior coil of the monodelphic uterus to be the anterior, blind uterus of the didelphic genital tract. Subsequently, *P. oligocotti* was reported by Bennett & Adamson (2004) from the body cavity and circulatory system of nine species of marine fishes belonging to the fish orders Gobiesociformes, Gasterosteiformes, Perciformes, Scorpaeniformes and Syngnathiformes off the Pacific coast of Canada. However, considering a high degree of host specificity of dracunculoid nematodes (Moravec, 2006) and because no morphological data (except for information concerning their gravidity) of these nematodes were provided, it is highly probable that more congeneric species were mistaken under the name *P. oligocotti*.

Moravec et al. (2001), based solely on available larvigerous female specimens collected from the circulatory system of the bay pipefish *Syngnathus leptorhynchus* Girard (Syngnathidae) caught in the San Francisco Bay, California, USA and Vancouver, British Columbia, Canada, erected a monotypic genus *Syngnathinema* Moravec, Spangenberg & Frasca, 2001 to accommodate their new species *S. californiense* Moravec, Spangenberg & Frasca, 2001. The genus was characterised by monodelphic female reproductive organs. However, subsequently, Bennett & Adamson (2004) reported *S. leptorhynchus* as one of the nine host species of *P. oligocotti* recorded from several localities in British Columbia, with prevalence 22%; they also recorded larvigerous females in this host species.

The morphology of the larvigerous (gravid) female of *P. oligocotti* has never been described, but it is apparent that *S. californiense* and specimens collected from *S. leptorhynchus* and considered by Bennett & Adamson (2004) to be *P. oligocotti* belong to the same species. Both these forms are from the same host species, their localisation in the host (circulatory system) is identical and they occur in the same region (northeastern Pacific coast). Although the female genital tract of *P. oligocotti* was originally reported as didelphic, now it is clear that *Pseudodelphis* spp. are monodelphic (see above). Therefore, *Syngnathinema* should be considered a junior synonym of *Pseudodelphis* and *S. californiense* should be transferred to this genus as *Pseudodelphis californiensis* (Moravec, Spangenberg & Frasca, 2001) n. comb. However,

until the males of the nematodes parasitising the circulatory system of *S. leptorhynchus* are described to confirm the identity with *P. oligocotti*, *P. californiensis* should be considered a valid species. Another species of *Syngnathinema*, *S. chitwoodi* (see Moravec & Kuchta, 2013), should also be transferred to *Pseudodelphis* as *P. chitwoodi* (Moravec & Kuchta, 2013) n. comb.

Based solely on two larvigerous female specimens collected from the abdominal cavity of the creole perch *Percichthys trucha* (Perciformes, Percichthyidae) in Lake Aluminé, Patagonia, Argentina, Moravec et al. (1997) described a new nematode species, *Philonema percichthydis*. Since the authors were not able to find the vulva and vagina, apparently obscured by the mass of larvae in the nematode body, and because the genital tract was considered to be amphidelphic (they erroneously reported the presence of a small, hardly visible anterior ovary, apparently an artefact), they assigned this species to *Philonema* Kuitunen-Ekbaum, 1933. Subsequently, Brugni & Viozzi (2006) described *Pseudodelphis limnicola*, based on both males and females, from the abdominal cavity and circulatory system of the same host species (*P. trucha*) in several lakes of Patagonia. Since the gravid females of both these forms are morphometrically much the same (Table 1) and these occur in the same host species in the same region (Patagonia), there is no doubt that they are conspecific. Consequently, *Philonema percichthydis* should be transferred to *Pseudodelphis* as *P. percichthydis* (Moravec,

Table 1 Comparative data for gravid (ovigerous and larvigerous) females of *Pseudodelphis percichthydis* and *Pseudodelphis limnicola*

Species	<i>P. percichthydis</i> ^a	<i>P. limnicola</i>
Source	Moravec et al. (1997)	Brugni & Viozzi (2006)
Body length (mm)	89–109	26–121
Oesophagus length (mm)	3.81–4.34	2.86–4.86
Distance of nerve-ring from anterior extremity (µm)	476–517	291–509
Tail length (µm)	598–666	c.600 ^b
Body length of larvae (µm)	600–840	636–772
Site in host	Body cavity	Body cavity and circulatory system
Locality	Lake Aluminé, Patagonia	Lakes Escondido, Falkner, Puelo, Quillén ^c and Villarino, Patagonia

^aAs *Philonema percichthydis*; ^bEstimated from the original illustration; ^cLocated near Lake Aluminé

Urawa & Coria, 1997) n. comb. and *Pseudodelphis limnicola* becomes its junior synonym.

Consequently, at present the genus *Pseudodelphis* includes four species considered to be valid: *P. californiensis*, *P. chitwoodi*, *P. oligocotti* (type-species) and *P. percichthydis*; *P. chitwoodi* is a little-known specific parasite of the Mississippi paddlefish *Polyodon spatula* (Walbaum) (Acipenseriformes, Polyodontidae) in the USA (Moravec & Kuchta, 2013). The new species markedly differs from those described from freshwater fishes, *P. chitwoodi* and *P. percichthydis*, in that the body of the gravid female is much shorter (c.31–59 mm long vs 117 mm and up to about 122 mm long, respectively) as compared with these species. The male of *P. chitwoodi* is not known; the males of *P. percichthydis* are much longer (18.1–24.8 mm) than those of *P. elegendopsis* n. sp., but their spicules are largely shorter (43–50 vs 48–63 µm) and the caudal papillae may be more numerous (two to four pairs of preanals, one to two pairs of adanals and four to seven pairs of postanals vs two pairs preanal, one pair adanal and four pairs postanal). Brugni & Viozzi (2006) did not observe lateral cephalic papillae and amphids in *P. limnicola* (syn. of *P. percichthydis*), present in other congeneric species, but these were previously reported for the same species by Moravec et al. (1997).

The larvigerous female of *P. oligocotti* has not been described, but this can be estimated to be approximately as long as in *P. californiensis* (c.51–54 mm) or in the new species (c.31–59 mm). The male of *P. californiensis* is not known, but in contrast to *P. elegendopsis* the female has only four (vs eight) large cephalic papillae of the outer circle. The lengths of spicules of both species somewhat overlap (60–70 µm in *P. oligocotti* and 48–63 µm in *P. elegendopsis*), but the males of the former species (c.15–18 mm long) are distinctly longer than those of the latter one (c.10–13 mm). Moreover, in contrast to *P. elegendopsis*, *P. oligocotti* possesses a small sclerotised buccal capsule, one median papilla located on the anterior cloacal lip and the male subventral caudal papillae may be more numerous and differently arranged. In addition to interspecific morphological differences, differences in the hosts, geographical regions and environments, also the site of infection in the host should be taken into account; whereas the adults of *P. elegendopsis* are found in the host's tissues behind the gills, those of other congeneric species were reported from the circulatory

system, body cavity and mesentery surrounding the intestine. A key to *Pseudodelphis* spp. is provided at the end of Discussion.

The senior author of this paper (F. M.) has recently been informed by Dr Kenneth Mackenzie, University of Aberdeen that he recorded philometrid larvae, identified as *Philonema* sp., from the mesentery, liver, heart and gonads of *E. maclovinus* off the Falkland Islands. Considering the host species and the locality, it is almost sure that these larvae were conspecific with *P. elegendopsis*. Previously the same larvae from *E. maclovinus* were erroneously reported as *Philometra* sp. by Moravec (2006) in the host-parasite list of his book dealing with dracunculoid and anguillicoloid nematodes.

According to the classification system of Moravec (2006), principally based on morphological features, the superfamily Dracunculoidea consists of eight families. With the exception of the Dracunculidae Stiles, 1907 including the parasites of mammals, birds and reptiles, all of them have some genera with the species parasitising fishes, elasmobranchs or cyclostomes. In addition to *Pseudodelphis*, the family Guyanemidae includes the genera *Guyanema* Petter, 1974 and *Travassosnema* Costa, Moreira & Oliveira, 1991 (both with species parasitic in Neotropical freshwater fishes), *Histodytes* Aragort, Álvarez, Iglesias, Leiro & Sanmartín, 2002 (with one species in marine rays), *Ichthyofilaria* Yamaguti, 1935 (parasites of marine fishes) and *Moravecchia* Ribu & Lester, 2004 (parasites of marine fishes); representatives of all these genera show some morphological resemblance to *Pseudodelphis* spp. However, also species of the genera *Granulinema* Moravec & Little, 1988 (parasites of sharks) and *Philonema* (parasites of salmonids), both of them allocated in the Micropleuridae Baylis & Daubney, 1922, as well as the only species of the monotypic *Lucionema* Moravec, Molnár & Székely, 1998 (parasitic in freshwater percid, see above) show morphological similarity to *Pseudodelphis*, especially in the structure of the oesophagus and the female genital tract. Nevertheless, molecular studies of representatives of the above-mentioned dracunculoid genera are needed to elucidate actual phylogenetic relationships among these forms.

Key to the species of *Pseudodelphis*

- 1a Parasites of freshwater fishes 2
 1b Parasites of marine fishes 3
 2a Body length of ovigerous and larvigerous females approximately 26–122 mm; glandular oesophagus 2.13–3.87 mm long; muscular to glandular oesophagus length ratio 1:3.4–3.6. Males approximately 18–25 mm long; length of spicules 43–50 µm. Parasitic in Percichthyidae (*Percichthys trucha*) in the Neotropical Region (Patagonia, Argentina) *P. percichthyidis*
 2b Body length of ovigerous female 117 mm; glandular oesophagus 1.40 mm long; muscular to glandular oesophagus length ratio 1:2.15. Males not known. Parasitic in Polyodontidae (*Polyodon spatula*) in the Nearctic Region (Mississippi, USA) *P. chitwoodi*
 3a Parasites of marine fishes off Pacific coast of North America (Canada, USA) 4
 3b Parasites of marine fish off Atlantic coast of South America (Patagonia, Argentina). Body length of larvigerous females approximately 31–59 mm. Males approximately 10–13 mm long; length of spicules 48–63 µm. Parasitic in Elegendinopsidae (*Elegendinops maclovinus*)
 *P. elegendinopsis* n. sp.
 4a Eight cephalic papillae of outer circle; amphids slit-like. Small buccal capsule present. Body length of ovigerous females approximately 26–32 mm. Males 16–18 mm long; length of spicules 60–70 µm. Parasitic in Cottidae (type-host *Oligocottus maculosus*); reported also from Gasterosteidae, Gobiesocidae, Pholidae and Syngnathidae *P. oligocotti*
 4b Four cephalic papillae of outer circle; amphids circular. Buccal capsule absent. Body length of larvigerous females approximately 51–54 mm. Males not known. Parasitic in Syngnathidae (*Syngnathus leptorhynchus*)
 *P. californiensis*

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Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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